GRATING BASED COMBINATION WAVELENGTH MULTIPLEXER AND WAVELENGTH STABILIZER

Abstract of the Invention

In an optical device, each of a plurality of radiation sources generates a separate different wavelength output signal to a wavelength locking device wherein a grating device receives the separate wavelength output signals from the plurality of radiation sources. The grating device generates a multiplexed wavelength output signal at a zero diffraction order output port thereof, and resolves separate symmetric wavelength+δ and wavelength-δ output signals at separate predetermined locations within at least one non-zero diffraction order thereof for each of the radiation sources. Each of a plurality of radiation detectors is coupled to receive a separate one of the symmetric wavelength+δ and wavelength-δ output signals and generate an output signal representing the magnitude of the received wavelength output signal. A control device is responsive to output signals from each pair of radiation detectors coupled to receive the separate symmetric wavelength+δ and wavelength-δ output signals from a specified predetermined radiation source for generating an output control signal appropriate to that radiation source for locking the wavelength thereof.